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PATENT APPLICATION

ATTORNEY DOCKET NO. 10015698-4

IN THE
UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): Blaine D. Gaither

Serial No.: 09/919,309 (parent)

Examiner: Dinh, Ngoc V.

Filing Date: 07/31/01 (parent)

Group Art Unit: 2187

Title: CACHE SYSTEM WITH GROUPS OF LINES AND WITH COHERENCY FOR BOTH
SINGLE LINES AND GROUPS OF LINES

REMARKS IN CONJUNCTION WITH CONTINUATION APPLICATION

THE ASSISTANT COMMISSIONER OF PATENTS
Washington, D.C. 20231

Sir:

REMARKS

In the parent application, claims 1, 2, and 8-15 were canceled, and claims 3-7 and 16-19 were allowed. In this continuation, original claims 1, 2, and 8-15 are resubmitted as renumbered claims 1-10.

Original claim 2 has been amended to correct an informality (duplicate words "maintaining identity" have been deleted). Original claim 13 (now claim 8) has been amended to correct an informality (the conjunction "and" at the end of the first element has been deleted). Figure 1 has been amended to correct a duplication of reference number 106 (bus 106 has been changed to bus 120). The specification has been amended at page 6, line 14 to correct the reference to bus 106 in figure 1 (bus 106 has been changed to bus 120).

In paper 5, claims 1, 2, 8, 12, and 15 were rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over U.S. Patent Number 5,787,475 (Pawlowski) in view of U.S. Patent Number 5,666,514 (Cheriton). Applicant respectfully traverses.

The first element of claim 1 specifies: "a cache memory that reads and caches a group of lines with a single memory transaction."

Regarding the first element of claim 1, the examiner cites Pawlowski, col. 2, lines 27-39. The cited text refers to an I/O module, not a cache. Furthermore, Pawlowski, col. 2, lines 22-26 state that there is no cache for the I/O module.

The second element of claim 1 further specifies: “a system for maintaining identity of which device, if any, owns the group of lines, and which device, if any, owns each individual line within the group of lines.”

Regarding the second element of claim 1, the examiner cites Cheriton, column 6, lines 21-65. In the cited text, a cache knows whether it is the exclusive owner of a line, but does not teach or suggest ownership of a group of lines. If the requesting cache is not the exclusive owner, the cited text does not teach or suggest any knowledge, by the cache requesting ownership, of which device is the owner.

Original claim 12 (now claim 7) has a element similar to the second element of claim 1. Original claim 15 (now claim 10) also specifies ownership of a group of lines.

In paper 5, claims 9-11 were rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over U.S. Patent Number 5,832,232 (Danneels) and official notice. Applicant respectfully traverses.

Original claim 9 (now claim 4) specifies:

a cache memory that reads a group of lines with a single memory transaction; and the cache memory receiving fewer than all lines within the group of lines, when the group of lines is requested, and when the group of lines is partially owned by another cache memory.

Original claim 10 (now claim 5) specifies that the cache receives a variable number of lines. Original claim 11 (now claim 6) specifies that the cache requests a single line, but receives an entire group of lines when the group is owned by one owner.

Regarding claim 9-11, the examiner cites Danneels column 8, line 62 to column 9, line 5 as teaching requesting data and receiving only a portion of the requested data. The cited text relates to systems transferring data over a network and has nothing to do with caching or memory systems, and has nothing to do with ownership of a group of lines. The examiner takes official notice that it is known for a group of lines to be owned by one cache. Applicant respectfully traverses. Ownership of one line is known, but ownership of a group of lines is new to the parent application. The examiner appears to equate an

Exclusive state with ownership of a group. The word "Exclusive" means that exactly one cache hierarchy has a copy of one line. "Exclusive" has no relation to the concept of ownership of a group of lines. In addition, a combination of the cited art and official notice does not teach or suggest all the limitations of claim 9. That is, the cited art and official notice combined do not teach or suggest a cache memory that reads a group of lines with a single memory transaction but receives fewer than all the lines when the group is partially owned by another cache. In addition, a combination of the cited art and official notice does not teach or suggest all the limitations of claim 11. That is, the cited art and official notice combined do not teach or suggest a cache memory that requests one line but receives a group of lines when the group is owned by one owner.

Respectfully submitted,

by A. W. Winfield

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